

## 5A, 20V - 150V Surface Mount Schottky Barrier Rectifier

### FEATURES

- Low power loss, high efficiency
- Ideal for automated placement
- Guard ring for over-voltage protection
- High surge current capability
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

KEY PARAMETERS		
PARAMETER	VALUE	UNIT
$I_{F(AV)}$	5	A
$V_{RRM}$	20 - 150	V
$I_{FSM}$	120	A
Package	DO-214AA (SMB)	
Configuration	Single Die	

### APPLICATIONS

- Switching mode power supply (SMPS)
- Adapters
- Lighting application
- Converter



### MECHANICAL DATA

- Case: DO-214AA (SMB)
- Molding compound meets UL 94V-0 flammability rating
- Moisture sensitivity level: level 1, per J-STD-020
- Packing code with suffix "G" means green compound (halogen-free)
- Part no. with suffix "H" means AEC-Q101 qualified
- Terminal: Matte tin plated leads, solderable per J-STD-002
- Meet JESD 201 class 2 whisker test
- Polarity: As marked
- Weight: 0.1 g (approximately)



DO-214AA (SMB)

ABSOLUTE MAXIMUM RATINGS ( $T_A = 25^\circ C$ unless otherwise noted)										
PARAMETER	SYMBOL	SK 52B	SK 53B	SK 54B	SK 55B	SK 56B	SK 59B	SK 510B	SK 515B	UNIT
Marking code on the device		SK 52B	SK 53B	SK 54B	SK 55B	SK 56B	SK 59B	SK 510B	SK 515B	
Repetitive peak reverse voltage	$V_{RRM}$	20	30	40	50	60	90	100	150	V
Reverse voltage, total rms value	$V_{R(RMS)}$	14	21	28	35	42	63	70	105	V
Maximum DC blocking voltage	$V_{DC}$	20	30	40	50	60	90	100	150	V
Forward current	$I_{F(AV)}$	5							A	
Surge peak forward current, 8.3 ms single half sine-wave superimposed on rated load per diode	$I_{FSM}$	120							A	
Critical rate of rise of off-state voltage	$dV/dt$	10000							V/ $\mu$ s	
Junction temperature	$T_J$	- 55 to +150							°C	
Storage temperature	$T_{STG}$	- 55 to +150							°C	

**THERMAL PERFORMANCE**

PARAMETER	SYMBOL	LIMIT	UNIT
Junction-to-lead thermal resistance	$R_{\Theta JL}$	19	°C/W
Junction-to-ambient thermal resistance	$R_{\Theta JA}$	60	°C/W

**ELECTRICAL SPECIFICATIONS** ( $T_A = 25^\circ C$  unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	TYP	MAX	UNIT
Forward voltage per diode <sup>(1)</sup>	$I_F = 5A, T_J = 25^\circ C$	$V_F$	-	0.55	V
					V
					V
					V
			-	0.75	V
					V
			-	0.85	V
					V
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>	$T_J = 25^\circ C$	$I_R$	-	0.5	mA
					mA
					mA
					mA
			-	0.1	mA
					mA
					mA
					mA
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>	$T_J = 100^\circ C$	$I_R$	-	20	mA
					mA
					mA
					mA
			-	10	mA
					mA
					mA
					mA
Reverse current @ rated $V_R$ per diode <sup>(2)</sup>	$T_J = 125^\circ C$	$I_R$	-	-	mA
					mA
					mA
					mA
			-	2	mA
					mA
					mA
					mA

**Notes:**

1. Pulse test with PW=0.3 ms
2. Pulse test with PW=30 ms

**ORDERING INFORMATION**

<b>PART NO.</b>	<b>PART NO. SUFFIX</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX(*)</b>	<b>PACKAGE</b>	<b>PACKING</b>
SK5xxB (Note 1)	H	R5	G	SMB	850 / 7" Plastic reel
		R4		SMB	3,000 / 13" Paper reel
		M4		SMB	3,000 / 13" Plastic reel

**Note:**

1. "x" defines voltage from 20V (SK52B) to 150V (SK515B)

\*: Optional available

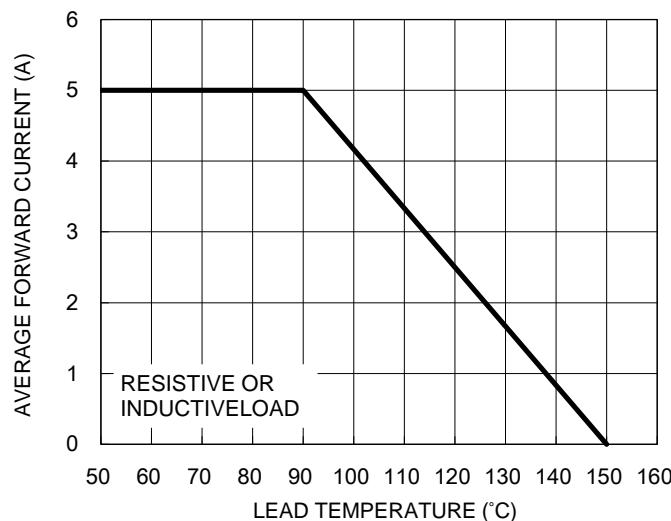
**EXAMPLE P/N**

<b>EXAMPLE P/N</b>	<b>PART NO.</b>	<b>PART NO. SUFFIX</b>	<b>PACKING CODE</b>	<b>PACKING CODE SUFFIX</b>	<b>DESCRIPTION</b>
SK56BHR5G	SK56B	H	R5	G	AEC-Q101 qualified Green compound

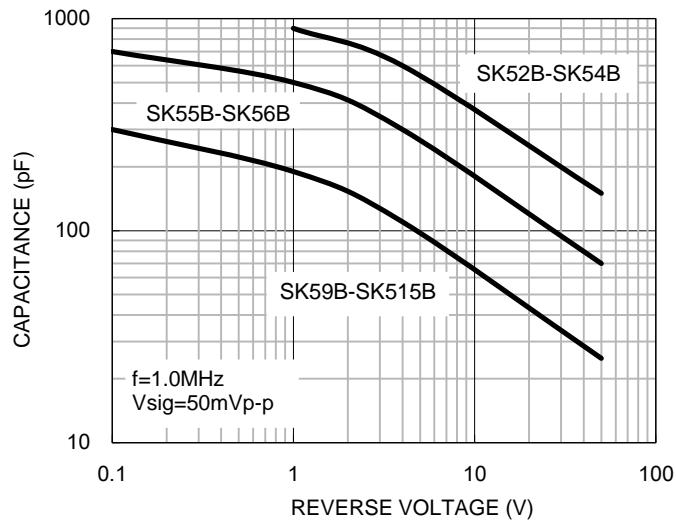
## CHARACTERISTICS CURVES

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

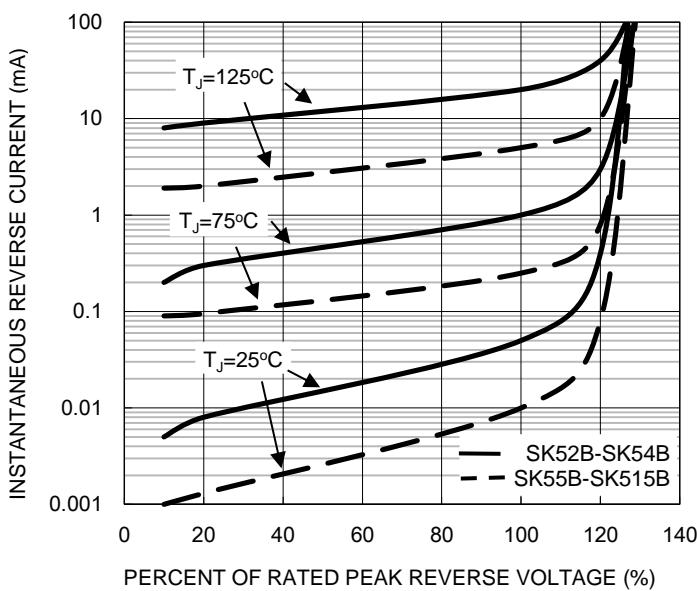
**Fig.1 Forward Current Derating Curve**



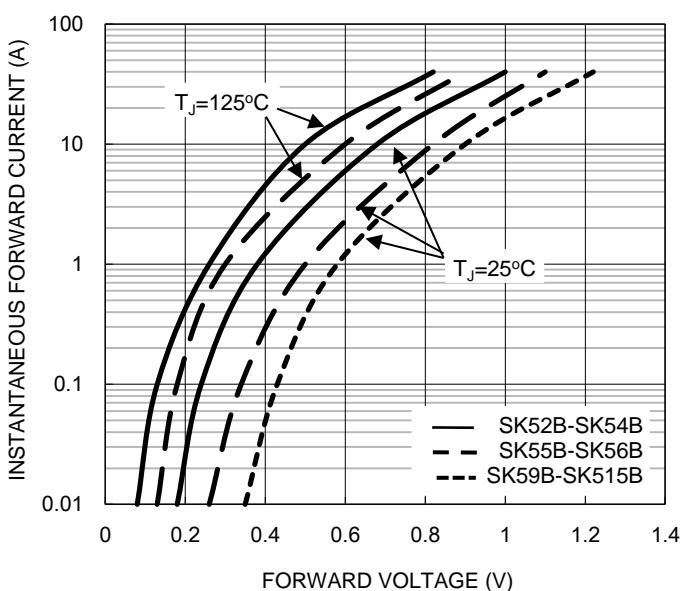
**Fig.2 Typical Junction Capacitance**



**Fig.3 Typical Reverse Characteristics**

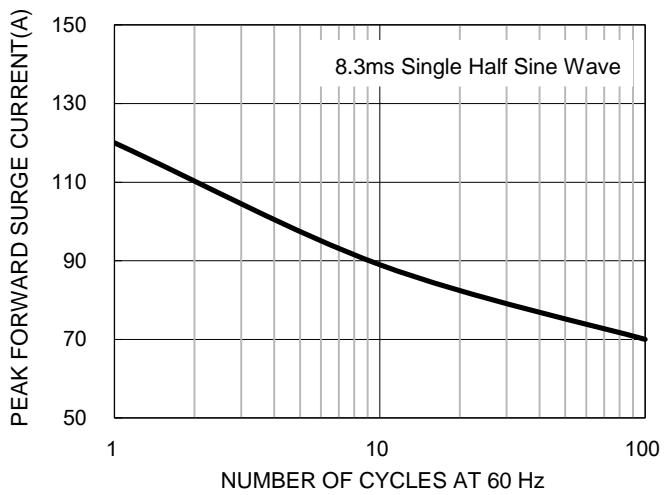
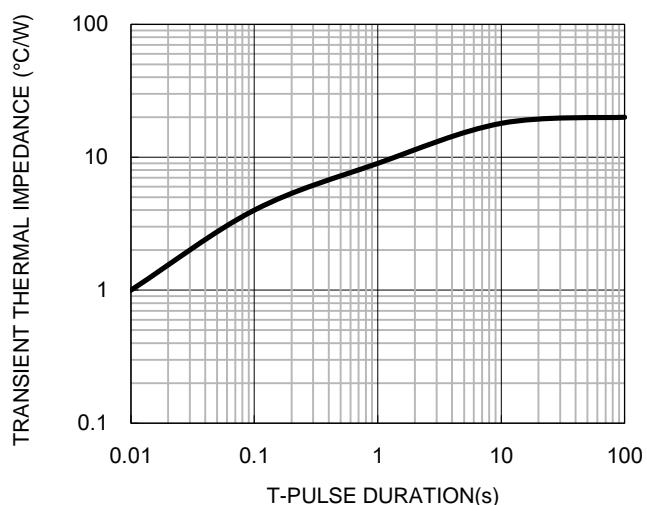


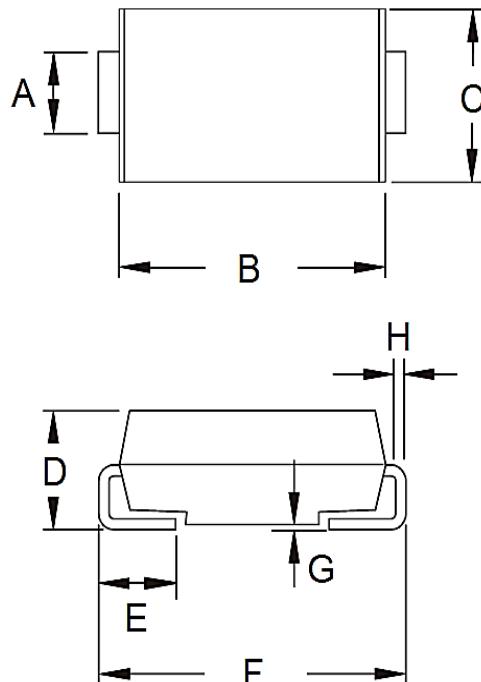
**Fig.4 Typical Forward Characteristics**



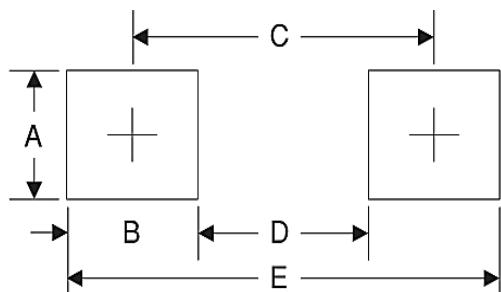
**CHARACTERISTICS CURVES**

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

**Fig.5 Maximum Non-repetitive Forward Surge Current****Fig.6 Typical Transient Thermal Characteristics**

**PACKAGE OUTLINE DIMENSIONS**
**DO-214AA (SMB)**


DIM.	Unit (mm)		Unit (inch)	
	Min	Max	Min	Max
A	1.95	2.20	0.077	0.087
B	4.05	4.60	0.159	0.181
C	3.30	3.95	0.130	0.156
D	1.95	2.65	0.077	0.104
E	0.75	1.60	0.030	0.063
F	5.10	5.60	0.201	0.220
G	0.05	0.20	0.002	0.008
H	0.15	0.31	0.006	0.012

**SUGGESTED PAD LAYOUT**


Symbol	Unit (mm)	Unit (inch)
A	2.3	0.091
B	2.5	0.098
C	4.3	0.169
D	1.8	0.071
E	6.8	0.268

**MARKING DIAGRAM**


P/N = Marking Code  
 G = Green Compound  
 YW = Date Code  
 F = Factory Code

## Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## Taiwan Semiconductor:

[SK515B](#) [SK510B](#) [SK52B](#) [SK53B](#) [SK54B](#) [SK55B](#) [SK56B](#) [SK59B](#) [SK515B R5](#) [SK53B R5](#) [SK510B R4G](#)  
[SK59BHR5](#) [SK52BHR4G](#) [SK54B R5G](#) [SK54BHR5G](#) [SK54B R4](#) [SK56B R4G](#) [SK510BHR5G](#) [SK53BHR4](#) [SK54B R4G](#)  
[SK52BHR4](#) [SK52B R5G](#) [SK510B R5](#) [SK52BHR4](#) [SK510BHR5](#) [SK59B R5](#) [SK510BHR4G](#) [SK59BHR4G](#)  
[SK59B R5G](#) [SK52BHR5](#) [SK53BHR5](#) [SK56BHR5G](#) [SK515B R5G](#) [SK53B R5G](#) [SK54BHR4G](#) [SK55BHR5G](#)  
[SK52BHR5G](#) [SK55B R5G](#) [SK510B R5G](#) [SK56BHR4](#) [SK515BHR5](#) [SK54BHR5](#) [SK56B R4](#) [SK52B R5](#) [SK56BHR5](#)  
[SK56BHR4G](#) [SK53BHR5G](#) [SK53B R4G](#) [SK56B R5G](#) [SK55B R4G](#) [SK510BHR4](#) [SK59BHR5G](#) [SK515BHR4](#)  
[SK55BHR4G](#) [SK53BHR4G](#) [SK515BHR5G](#) [SK59B R4G](#) [SK515BHR4G](#) [SK55BHR5](#) [SK54BHR4](#) [SK515B R4](#)  
[SK59BHR4](#) [SK55B R5](#) [SK515B R4G](#) [SK52B R4G](#) [SK52B R4](#) [SK55B R4](#) [SK510B R4](#) [SK54B R5](#) [SK53B R4](#)  
[SK56B R5](#) [SK59B R4](#)